

Claims:

We claim:

1. An apparatus for locating and stabilizing an orthopedic intramedullary nail having a longitudinal axis and inserted longitudinally within the medullary cavity of a fractured long bone in an animal extremity, said apparatus comprising:
  - a. an intramedullary nail having a longitudinal axis, and a plurality of target apertures therein disposed about said longitudinal axis, a portion of said apertures above a fracture in said bone and a portion of said apertures below a fracture in said bone, each of said apertures having a predetermined cross-sectional geometry;
  - b. a removable handle for inserting and removing the nail;
  - c. an adjustable jig removably secured to said handle comprising a proximal target arm having a plurality of apertures therein adapted to align with a plurality of apertures in a distal target arm, said proximal target arm and said distal target arm adjustable relative to one another along said longitudinal axis;
  - d. apparatus to drill apertures through the near cortex and the far cortex of said bone on both sides of a target aperture in said nail such that apertures in the cortex of said bone are aligned with target apertures in said nail and apertures in said jig; and
  - e. a slot finder inserted through said aperture in the near cortex of said bone and adapted to engage said target aperture, said slot finder having a cross-sectional geometry substantially identical to the cross-sectional geometry of said target apertures in said nail, such that the slot finder securely engages the target aperture in said nail.
2. The apparatus of claim 1, wherein said jig comprises a cannula adapted to be secured to said bone.

3. The apparatus of claim 2, wherein said jig comprises a drill guide adapted to be disposed within said cannula.
4. The apparatus of claim 3, wherein said jig comprises a drill and a first larger drill bit adapted to be disposed through said drill guide such that said larger drill bit drills a first larger aperture in the near cortex of said bone.
5. The apparatus of claim 4, wherein said slot finder comprises a leading end having a cross-sectional geometry substantially identical to the cross-sectional geometry of said target apertures.
6. The apparatus of claim 5, wherein when said leading end of said slot finder is inserted within said target aperture, the rotational movement of said slot finder is less than approximately 20 degrees.
7. The apparatus of claim 4, wherein said slot finder further comprises a bearing surface adapted to engage the exterior surface of said nail.
8. The apparatus of claim 7, wherein said jig comprises a drill guide and a second smaller drill bit adapted to be disposed through said first larger aperture in said cortex and a target aperture in said nail, and to drill a second smaller aperture in said far cortex.
9. The apparatus of claim 8, wherein a screw is inserted through said first larger aperture in said cortex, through the target aperture, and through said second smaller aperture in said cortex.
10. The apparatus of claim 9, wherein said screw is provided with a first larger threaded portion for securement in said first larger aperture in said near cortex, and a second smaller threaded portion for securement in said second smaller aperture in said far cortex.
11. The apparatus of claim 1, wherein said apparatus further comprises a device to remove said nail from said bone, comprising:
  - a. an elongate shaft;
  - b. a threaded portion of said shaft adapted to engage a mating threaded portion of said nail;
  - c. a cap at an end of said shaft proximal from said threaded portion; and
  - d. a weight slidably engaged along said shaft.

12. The apparatus of Claim 11, wherein said intramedullary nail further comprises a plurality of longitudinally oriented fins at a distal end of said nail.